Fact Sheet

Network Design and Analysis Capability

Purpose: The Office of the Manager, National Communications System (OMNCS) developed the Network Design and Analysis Capability (NDAC) to analyze different operational aspects of telecommunications networks. The NDAC enables the OMNCS to review the operation of the public switched network (PSN), including Internet Protocol (IP), Internet Telephony, next generation packet switched IP networks, Supervisory Control and Data Acquisition (SCADA) systems, and cable, wireless and satellite infrastructures under various stress conditions. NDAC software resources include the tools, models, and telecommunications databases used to assess network performance, perform modeling and simulation, and visualize network topologies. The NDAC will continue to be refined and expanded through software updates and application module development.

Background: As stipulated by Executive Order 12472, the National Communications System (NCS) evaluates the capability of the Nation's telecommunications resources to meet national security and emergency preparedness (NS/EP) telecommunications requirements. Because of the Government and NS/EP community's heavy reliance on the PSN, the NDAC was developed to study natural and man-made disruptions to the PSN, perform vendor independent analyses, develop models and methodologies to identify vulnerabilities and congestion, and identify network effectiveness solutions. The NDAC is not only designed to detect and help mitigate damage caused by accident or attack but also to assist in reconstitution.

Highlights:

- ❒ Supports planning and provisioning of NS/EP communications for the Federal government under all circumstances, including crisis or emergency, attack, recovery, reconstitution.
- ❒ Maintains current/valid representation of PSN.
- ❒ Enables custom modeling/simulation studies of telecommunications networks, including route diversity and interdependency studies, under a variety of NS/EP conditions.
- ❒ Performs analysis of PSN dependability and resiliency under stresses induced during NS/EP situations.
- ❒ Examines the effect of new and emerging technologies on the PSN and the Internet infrastructure, specifically how these effects may modify future NS/EP requirements.
- ❒ Provides laboratory test bed perspectives on network performance resulting from emerging technologies.
- ❒ Incorporates flexibility to customize network architectures and routing schemes, introduce new carrier network data, and emulate the affects of emerging technologies.

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